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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,857	08/30/2001	Masanori Nonomura	F-7139	8545

7590

02/08/2005

Jordan and Hamburg  
122 East 42nd Street  
New York, NY 10168

EXAMINER

FISCHER, JUSTIN R

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/942,857

Applicant(s)

NONOMURA ET AL.

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 1 is/are allowed.  
6) ☒ Claim(s) 5-10 and 12-16 is/are rejected.  
7) ☒ Claim(s) 11 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cheng (US 6,134,360, of record). As best depicted in Figure 2b, Cheng discloses a method of forming a multi-fiber assembly comprising the steps of exposing the ends of a pair of fibers 2, inserting said fibers within a sleeve 1 or holding tube (arranging and holding), affixing or bonding the optical fibers to said sleeve via an adhesive, and inserting the sleeve/fiber assembly into a ferrule (Column 1, Lines 45-52; Column 2, Lines 7-10; Column 4, Lines 40-45). In regards to the exposing step noted above, Cheng fails to expressly state that the fibers are exposed by removing cover portions from said fibers. In any event, as previously set forth in the Non-Final Rejection, it is well known in the optical industry to remove the coatings on the fiber ends in order to expose said fibers prior to placement with the

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ferrule. Also, the amount of coating removed in each fiber would be dependent on the arrangement of the device (and fibers there within) to which the sleeve/fiber assembly is being coupled, it being noted that the claim as currently drafted only requires that "length portions" are removed (no relationship between the respective lengths).

***Claim Rejections - 35 USC § 103***

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng as applied in the previous paragraph and further in view of Steptoe (US 5,403,977, of record). As noted above, Cheng discloses a method in which an adhesive, such as epoxy, glue, or resin, is used to seal the cavity or hole of the holding tube (Column 3, Lines 30-37). While Cheng fails to expressly describe the adhesive as a thermoset resin, one of ordinary skill in the art at the time of the invention would have found such a selection obvious in view of the adhesives disclosed by Cheng absent any conclusive showing of unexpected results. In particular, Cheng generally suggests the use of resins, it being well known that thermoset resins represent one of the common adhesive/resin forms (along with thermoplastics). Steptoe is additionally applied to evidence the use of such a resin/adhesive in similar applications (Column 1, Lines 9-20).

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng and Steptoe as applied in the rejection of claim 7 above and further in view of Honjo (US 5,422,971, of record). The method of Cheng is related to the placement of optical fibers within a sleeve and the subsequent deposition of said sleeve within a ferrule (Column 2, Lines 1-10). While Cheng fails to suggest that adhesive is injected

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into the ferrule, it is extremely well known in the optical connecting art to include such an adhesive material in the ferrule in order to firmly fix the optical fiber assembly and provide a desired arrangement. In particular, it is extremely well known to include a low viscosity, thermosetting resin, as shown for example by Honjo (Column 1, Lines 11-31). As such, one of ordinary skill in the art at the time of the invention would have found it obvious to include a low viscosity, thermosetting resin in the ferrule.

Regarding claim 9, one of ordinary skill in the art at the time of the invention would have found it obvious to form the second thermoset resin (injected into ferrule) as a lower viscosity resin, in comparison to the first thermoset resin (arranged within holder tube), since a low viscosity resin is conventionally injected into a ferrule, as recognized by Honjo. In particular, a low viscosity resin is used in order to allow the resin to sufficiently fill the fiber insertion holes in the ferrule. Regarding the resin arranged within the holder tube, said resin functions to secure the fibers within the holding tube and as such, would not be expected to demonstrate a low viscosity.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng as applied in claim 5 above and further in view of Nagase (JP 01232308, of record) or Di Maggio (US 5,625,735, of record). While Cheng is silent as to a rotating step, it is extremely well known in the optical fiber industry to adjust or orient the fibers by fixing the ferrule device (via a clamp) and rotate the fibers to achieve an optimum and accurate transfer of light between optical devices or adjacent fibers, as shown for example by either one of Nagase (Abstract) or Di Maggio (Column 1, Lines 10-30 and Column 3, Lines 1-13). Thus, one of ordinary skill in the art at the time of the invention

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would have found it obvious to include an orientation step in the method of Cheng in order to obtain the benefits detailed above.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng as applied in claim 5 above and further in view of either one of Ogawa (US 6,007,257, newly cited) or Fukuyama (US 6,231,244, newly cited). While Cheng is silent as to a polishing step, such a step is extremely well known in the manufacture of ferrule assemblies, as shown for example by Ogawa (Column 1, Lines 25-29) and Fukuyama (Column 5, Lines 57-61). It is emphasized that polishing represents an extremely common technique that prepares a given ferrule assembly for use. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a polishing technique in the method of Cheng.

8. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (US 6,134,360) and further in view of Honjo (US 5,422,971) and Steptoe (US 5,403,977). As best depicted in Figure 2b, Cheng discloses a method of forming a multi-fiber assembly comprising the steps of exposing the ends of a pair of fibers 2, inserting said fibers within a sleeve 1 or holding tube, affixing or bonding the optical fibers to said sleeve via an adhesive, and inserting the sleeve/fiber assembly into a ferrule (Column 1, Lines 45-52; Column 2, Lines 7-10; Column 4, Lines 40-45). It is initially noted that Cheng only broadly describes the method above and fails to include any of the particulars of how the sleeve is disposed within the ferrule. While Cheng fails to suggest that adhesive is injected into the ferrule, it is extremely well known in the optical connecting art to include such an adhesive material in the ferrule in order to

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firmly fix the optical fiber assembly and provide a desired arrangement. In particular, it is extremely well known to include a low viscosity, thermosetting resin, as shown for example by Honjo (Column 1, Lines 11-31). As such, one of ordinary skill in the art at the time of the invention would have found it obvious to include a low viscosity, thermosetting resin in the ferrule. Regarding the adhesive used to arrange the fibers within the sleeve, Cheng suggests that it can be an epoxy, glue, resin, glass solder, metal solder, etc. (Column 3, Lines 30-35). While a high viscosity, thermosetting resin is not expressly suggested, one of ordinary skill in the art at the time of the invention would have found it obvious to use such a resin/adhesive since it represents a common resin used in similar applications, as shown for example by Steptoe (Column 1, Lines 9-20). It is particularly noted that Steptoe used a high viscosity resin in the sealing of cables to prevent water or other fluid from traveling inside the cable- this is similar to the adhesive/sleeve assembly of Cheng in which it is desired to eliminate scratches, cracks, and leaks. Absent any conclusive showing of unexpected results, the particular selection of a high viscosity, thermosetting resin in the sleeve of Cheng would have been obvious to one of ordinary skill in the art at the time of the invention.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng, Honjo, and Steptoe as applied in the rejection of claim 13 above and further in view of either one of Nagase or Di Maggio. While Cheng is silent as to a rotating step, it is extremely well known in the optical fiber industry to adjust or orient the fibers by fixing the ferrule device (via a clamp) and rotate the fibers to achieve an optimum and accurate transfer of light between optical devices or adjacent fibers, as shown for

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example by either one of Nagase (Abstract) or Di Maggio (Column 1, Lines 10-30 and Column 3, Lines 1-13). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to include an orientation step in the method of Cheng in order to obtain the benefits detailed above.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng, Honjo, and Steptoe as applied in claim 13 above and further in view of Ohtsuka (US 6,062,740, newly cited). While Cheng fails to disclose the exposed portions as having different lengths, it is well recognized in the optical industry that the optical fibers generally have a slight variation in length (margin of error), as shown for example by Ohtsuka (Figure 6 and Column 6, Lines 20-30). As such, one of ordinary skill in the art at the time of the invention would have found expected the method of Cheng to include the arrangement of optical fibers having different lengths within a ferrule. It is emphasized that the claim does not require the respective lengths differ by a few millimeters as is the case in claim 1.

***Allowable Subject Matter***

11. Claim 1 is allowed. The following is a statement of reasons for the indication of allowable subject matter: the prior art reference of record failed to suggest, disclose, or teach a method of fabricating a multi-fiber polarization maintaining ferrule assembly in which the cover removal step involved the removal of different amounts (specifically few millimeters) of cover material. As noted above, Ohtsuka recognizes the known method in which the optical fibers have slightly different lengths. However, in this instance, the difference appears to be attributed to margin of error and is particularly evidenced by



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the range between 0.002 and 0.02 millimeters. This difference is extremely different (orders of magnitude) than that required by the claimed invention and as such, one of ordinary skill in the art at the time of the invention would not have found it obvious to practice this technique in the method of Cheng. It is further noted that the claimed technique facilitates insertion of the optical fibers within the ferrule assembly.

12. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

13. Applicant's arguments, see Pages 5 and 6, filed November 15, 2004, with respect to the rejection of claim 1 have been fully considered and are persuasive. The rejection of claim 1 with Cheng has been withdrawn. Regarding the newly added claims, claims 5 and 13 are broader than claim 1 and as such, the rejections set forth above are applicable. In particular, claims 5 and 13 are generally directed to the inclusion of optical fibers within a sleeve and the subsequent arrangement of the assembly in a ferrule. Lastly, as set forth in the previous office action, the dependent claims define well-known processing techniques and arrangements in the optical industry.

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

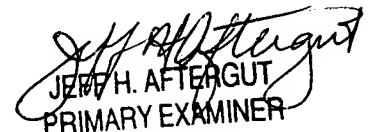
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Justin Fischer

February 4, 2005

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300